DOCUMENT RESUME

ED 067 020 HE 003 323

AUTHOR	Hewitt, Raymond G.
TITLE	On Developing a List of Institutions Comparable to the University of Massachusetts. Phase II: The Institutional Data Card.
INSTITUTION	Massachusetts Univ., Amherst. Office of Institutional Studies.
PUB DATE	Feb 68
NOTE	19p.
EDRS PRICE	MF-$0.65 HC-$3.29
DESCRIPTORS	*Educational Administration; Educational Planning; *Educational Research; Educational Status Comparison; *Higher Education; *Interinstitutional Cooperation; *Management Information Systems

ABSTRACT

Most institutions like to have at their disposal a list of schools comparable to their own for a variety of purposes. The criteria that can be used for determining such a list are, however, numerous and it would appear to be impractical to expect one list based on certain criteria to be useful for all purposes. The Institutional Data Card was designed to enable the Office of Institutional Studies at the University of Massachusetts to have at hand accurate and up-to-date information on a sample of institutions. These data will not only be used to determine lists of institutions comparable to the University in terms of various criteria, but will also be used in planning future studies and surveys. This paper focuses on the coding and operation of the card itself. A previous paper described the rationale behind the system, and a third paper will evaluate the actual operation of the system once it has been implemented. (Author/HS)

ED 067020

ON DEVELOPING A LIST OF INSTITUTIONS COMPARABLE TO THE UNIVERSITY OF MASSACHUSETTS

Phase II: The Institutional Data Card

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY

DRAFT by
Raymond G. Hewitt
Assistant Director

February 1968

HE 003 323

Office of Institutional Studies / University of Massachusetts / Amherst

PREFACE

Most institutions like to have at their disposal a list of schools comparable to their own for a variety of purposes. The criteria which can be used for determining such a list are, however, numerous and it would appear to be impractical to expect one list based on certain criteria to be useful for all purposes. The Institutional Data Card was designed, then, to enable the Office of Institutional Studies to have at hand accurate and up-to-date information on a sample of institutions. These data will not only be used to determine lists of institutions comparable to the University in terms of various criteria, but will also be used in planning future studies and surveys.

The rationale behind this system was described in an earlier paper (Phase I--Selecting the Variables and Choosing the Keysort System). The present paper focuses upon the card itself--its coding and its operation. A third, and final, paper will attempt to evaluate the actual operation of the system once it has been implemented.

Raymond G. Hewitt

Amherst
January 12, 1968

Introduction

Phase I--Selecting the Variables and Choosing the Keysort Principle described the variables thought to be appropriate for comparing institutions--in particular, Alexander Astin's[1] recent work on institutional environments was focused upon. The Keysort Principle was also briefly described, as was its application to the problem at hand. In the present paper, the Institutional Data Card itself will be focused upon and the coding procedures involved will be described. In a sense, the following represents a kind of "operations manual" for the system as it has evolved.

More than half of the data to be entered on the card were obtained from the individual institutions by use of the Institutional Data Questionnaire (see Appendices A and B). The sources of the remaining data are described in the following.

Keysort

What was needed for the system under development was some method where-by the stored data would be easily accessible for both visual scanning and mechanical sorting. While electronic data processing could have been used for this purpose, it seemed unnecessary for this preliminary work. It was decided, then, to use a manual sorting technique--Keysort.

The Keysort Card comes in a variety of sizes and is printed to individual specifications.[2] Around the perimeter of the card are punched a series of holes each of which can be assigned a specific code or classification which is usually printed adjacent to it (see figure 1). The body of the card provides space for typed or written information (see figures 1 and 2).

A hand punch is used to "notch" the appropriate holes on the card in order to enable a "sort" to be made using a "sorting needle" which resembles an awl or ice pick. The sorting process itself is quite simple: (1) The sorting needle is passed through a group of cards at the desired code location. (2) The sorting needle is raised allowing those cards which have been notched to fall away from the needle. (3) The cards which remain on the needle do not generally[3] contain the desired information (since they are not notched) and are, therefore, set aside. (4) The cards which fell away from the needle are regrouped and steps (1)-(3) are repeated. (5) This process is repeated until the cards remaining contain only the information desired.

---

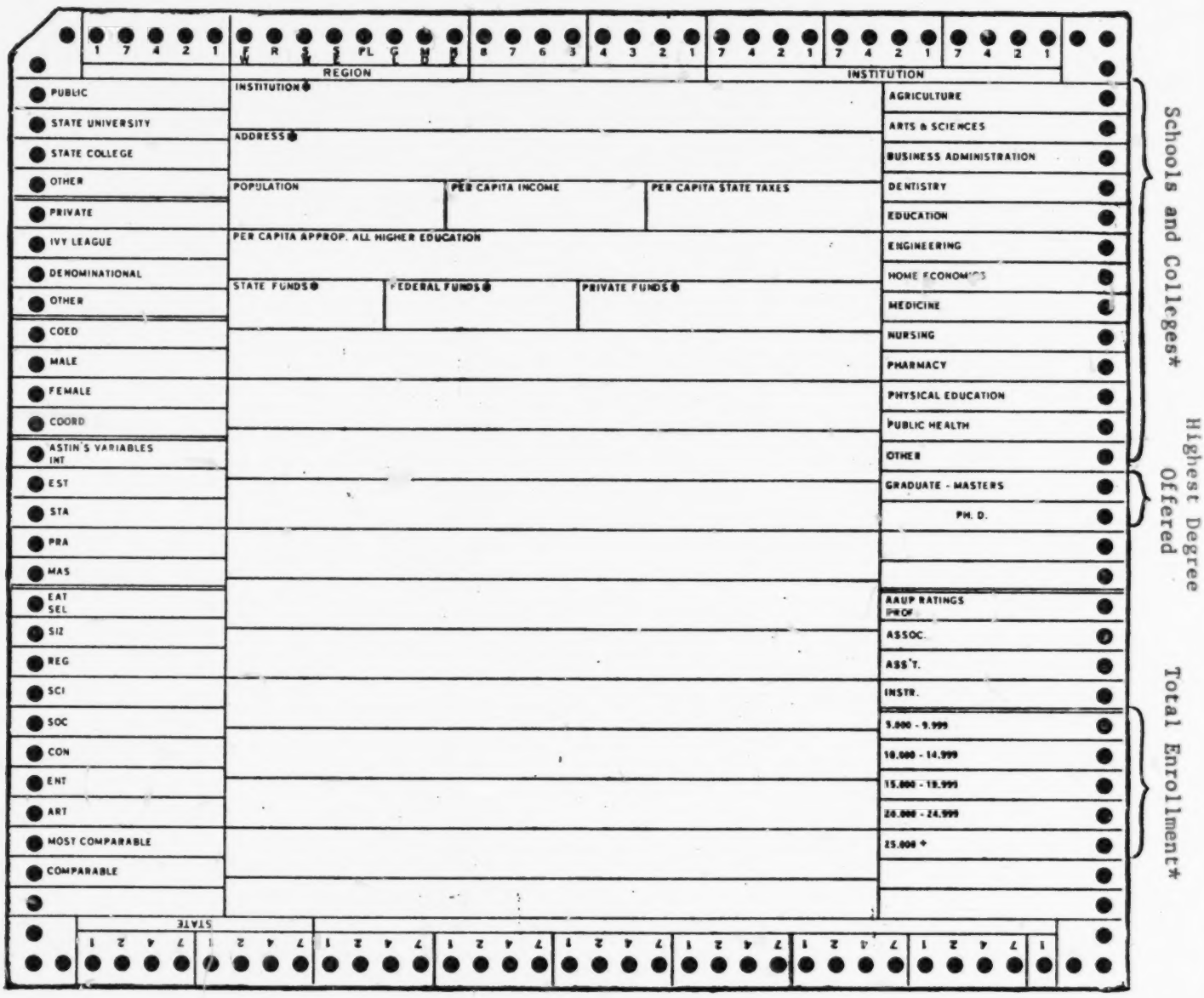
[1]Dr. Astin is the Director of Research for the American Council on Education and has done a considerable amount of research related to the characterization of college environments.

[2]The adaptability of Keysort has enabled it to be used for a variety of purposes in business for many years and in education more recently.

[3]In some applications, the cards remaining on the needle may contain the desired data. Such an application is described on p. 8.

Figure 1

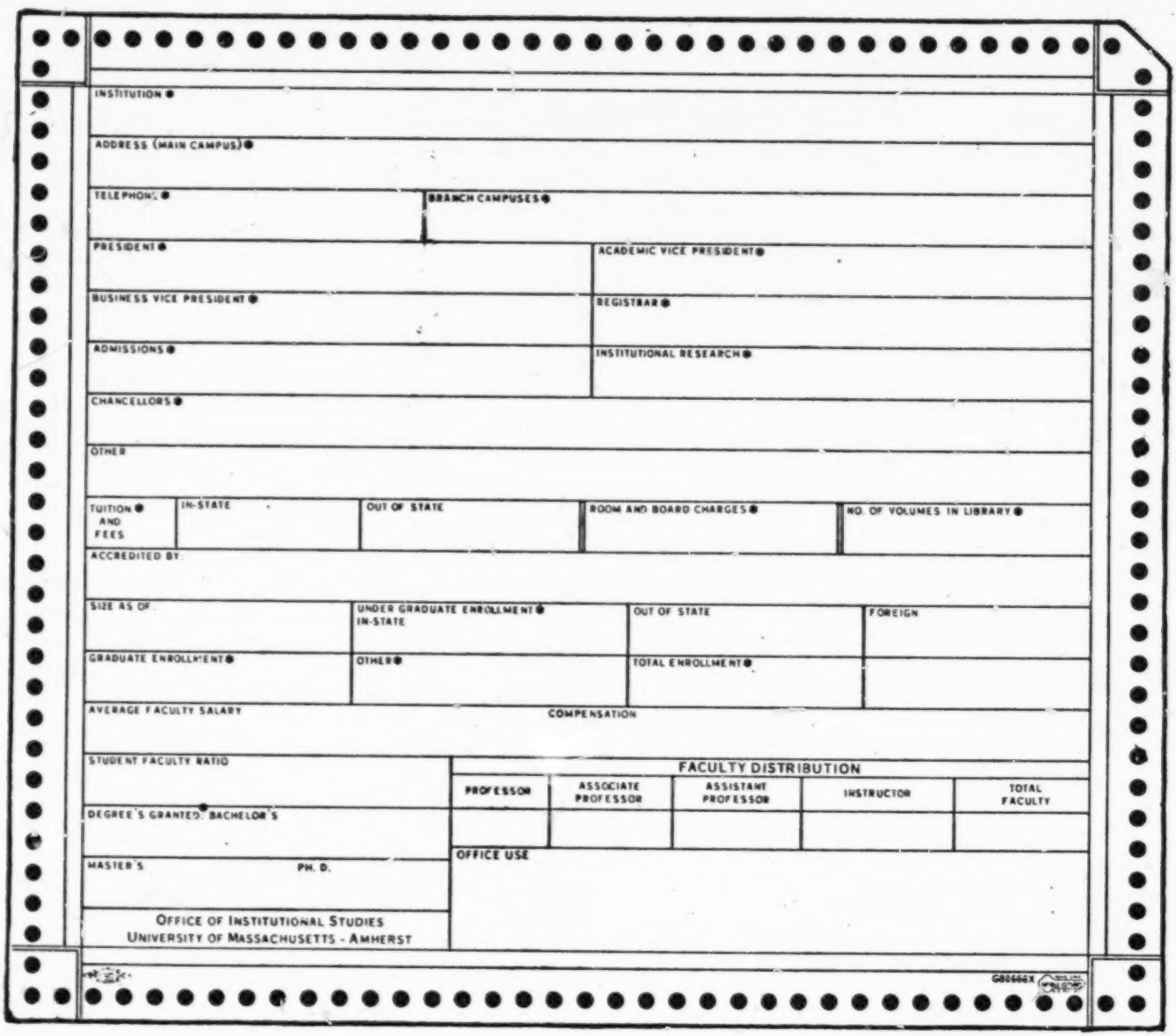
INSTITUTIONAL DATA CARD - BACK



All of the coded data appears on the back of the card. Room has also been left for storing general information and for adding future codes.

Note: The data for starred (*) items is obtained directly from the Institutional Data Questionnaire (see Appendix B).

INSTITUTIONAL DATA CARD - FRONT



General information -- no coding is done on the front of the card.

Note: The data for starred (*) items is obtained directly from the Institutional Data Questionnaire (see Appendix B).

The Keysort System is, then, easy to use and enables a rapid sort of the cards to be made. Since the ordering of the cards has no effect on the operation, the cards need not be kept in any particular sequence in order to be used effectively. The relatively small initial cost of the system and its ease of operation combine to make this system well suited for the purpose at hand.

The Institutional Data Card

The Institutional Data Card was designed, then, making use of the Keysort principle. The front of the card (figure 2) was retained exclusively for storing general information. Included here are the items the researcher would refer to frequently for general information--enrollment breakdown, chief administrators, etc. The back of the card (figure 1) contains primarily codable information (control; total enrollment; region, state and institution codes, etc.); space has also been left for future developments--additional general information and/or codable items.

As noted earlier, more than half of the data to be recorded on the card were obtained from a questionnaire sent to 230 institutions (approximately 200 were returned). With the exception of the data on funding (which needs further clarification) all of the data reported via the questionnaire are simply transcribed onto the card in the appropriate section. Those items on the card which are filled in in this manner are starred (*) in figures 1 and 2. Since these items are self-explanatory, no further clarification is necessary. The remaining data to be entered on the card are to be obtained from several sources (see Appendix G for a complete list of documents used in obtaining these data).

On the front of the card (figure 2), several items require further clarification:

1. Accreditation

   Accredited Institutions of Higher Education, September 1967, provides the data necessary here. If the institution appears in this document, the appropriate regional accrediting agency is noted. It is also noted if the institution has received any professional accreditation.

2. Average Faculty Salary

   As listed for 1966-67 in the Summer 1967 issue of the AAUP Bulletin, pp 160-185.

3. Average Faculty Compensation

   As listed for 1966-67 in the Summer 1967 issue of the AAUP Bulletin, pp 160-185

4. Student-Faculty Ratio

   In order to be as consistent as possible, this figure is calculated from data already appearing on the card by using the following formula:

   $$\text{S-F Ratio} = \frac{\text{Total Enrollment}}{\text{"Total Faculty"}}$$

5. Faculty Distribution

   Data for this section come from the Summer 1967 issue of the AAUP Bul-

letin, pp 160-185. The distribution among ranks is that provided in the Bulletin; "Total Faculty" refers to the number of full-time faculty as reported in the Bulletin.

Most of the data recorded on the back of the card (figure 1) are codable and often require little more than a check mark alongside the appropriate item. The items regarding control[4] and composition of the student body (top left of the card), for example, need only be checked to indicate the appropriate designation. For the University of Massachusetts (figure 3) "Public", "State University" and "Coed" are checked since these are the appropriate classifications. Only if "Other" is checked is further clarification necessary--e.g., the "Other" might refer to a technical institute in which case this should be noted.

Similarly for "Schools and Colleges", "Highest Degree Offered" and "Total Enrollment", those schools and colleges which the institution indicated on the questionnaire, the highest degree the institution offers[5], and the appropriate range for the total enrollment (as noted on the front of card) should each be checked.

The remaining data is obtained as follows:

1. Population, Per Capita Income

   Figures for 1966 as presented in A Fact Book on Higher Education, First issue, 1967.

2. Per Capita State Taxes

   Facts and Figures on Government Finance, Data for Fiscal 1965.

3. Per Capita Appropriations to All Higher Education

   Based upon M.M. Chambers' Appropriations of State Tax Funds for Operating Expenses of Higher Education, 1966-67.

4. Astin's Variables[6]

   Figures should be recorded alongside the appropriate item as listed in Who Goes Where to College?, Alexander Astin.

5. AAUP Ratings

   Ratings should be listed as reported in the summer 1967 issue of the AAUP Bulletin, pp 160-185.

---

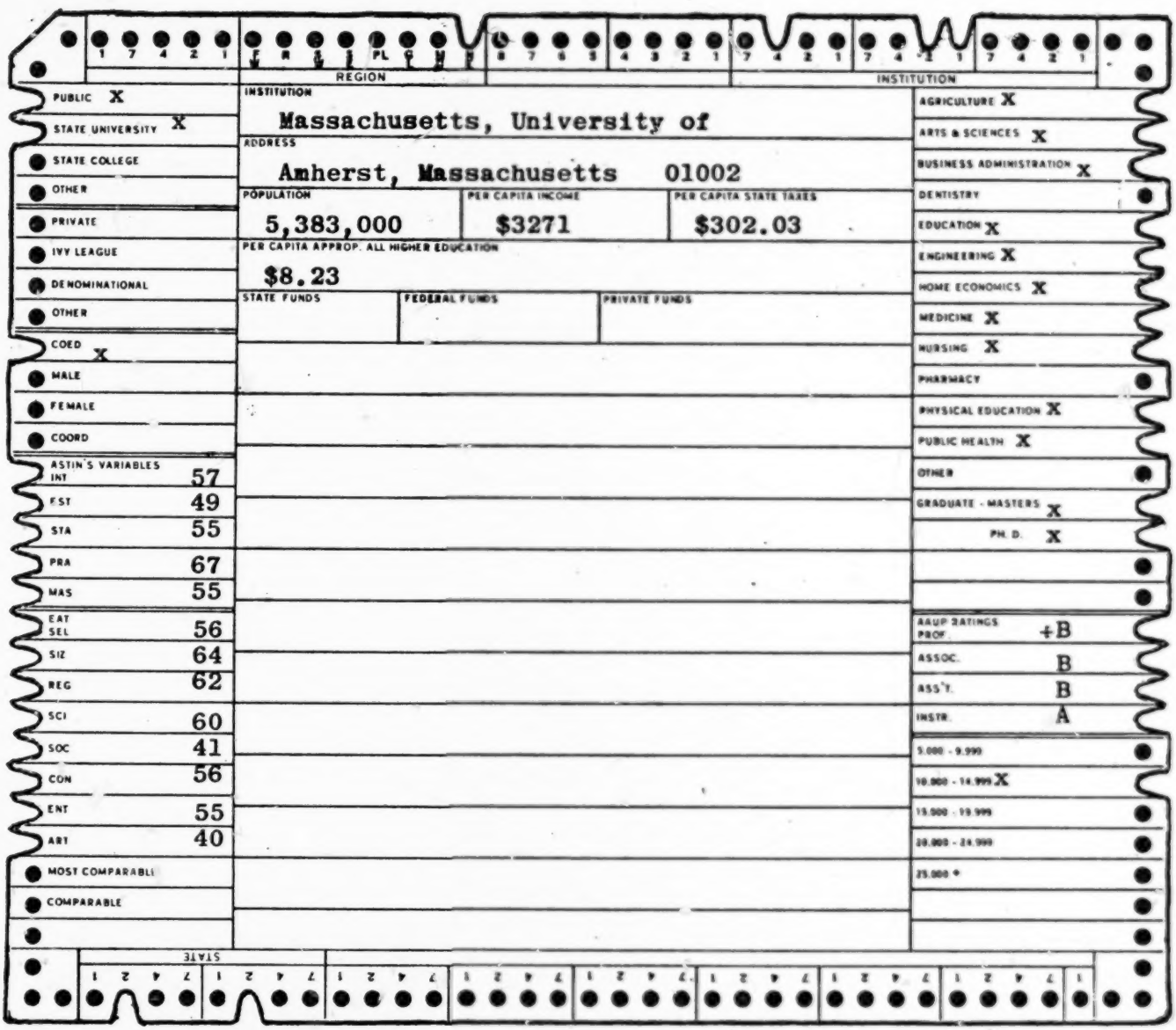
[4]Regarding control, if an institution is checked "Public", then the type of public institution ("State University", "State College" or "Other") should also be checked. Similarly for "Private" (see Appendix C for a list of those institutions regarding as "Ivy League").

[5]If the highest degree offered is a Bachelor's, then neither hole is checked.

[6]See Phase I--Selecting the Variables and Choosing the Keysort Principle for a complete description of Astin's Variables.

Figure 3

SAMPLE CARD - BACK



Completed card for the University of Massachusetts -- including coding. Note, in particular, the "State" (22) and "Institution" (430) codes as described in the text.

Figure 4

SAMPLE CARD - FRONT

INSTITUTION: Massachusetts, University of				
ADDRESS (MAIN CAMPUS): Amherst, Massachusetts 01002				
TELEPHONE: 413-545-0111	BRANCH CAMPUSES: Boston; Worcester (Medical School)			
PRESIDENT: John Lederle 545-2211		ACADEMIC VICE PRESIDENT: Oswald Tippo, Provost 545-2464		
BUSINESS VICE PRESIDENT: Kenneth Johnson, Treas 545-2213		REGISTRAR: William Starkweather 545-2555		
ADMISSIONS: William Tunis 545-2218		INSTITUTIONAL RESEARCH: Robert Cope 545-2141		
CHANCELLORS: John Ryan (Boston)				
OTHER: Lamar Soutter, Dean of the Medical School 545-2111				
TUITION AND FEES	IN-STATE: $336/yr	OUT OF STATE: $736/yr	ROOM AND BOARD CHARGES: $798/yr	NO. OF VOLUMES IN LIBRARY: 629,757
ACCREDITED BY: NEACSS; Bus, Chem, Eng, For, L.A., Nur, Psych, Teacher Educ				
SIZE AS OF: Fall 1966	UNDER GRADUATE ENROLLMENT IN-STATE: 9802	OUT OF STATE: 789	FOREIGN: 30	
GRADUATE ENROLLMENT: 2514	OTHER: Stockbridge: 544	TOTAL ENROLLMENT: 13679	Boston: 2121	
AVERAGE FACULTY SALARY: $11,078	COMPENSATION: $11,193			
STUDENT FACULTY RATIO: 18.3: 1	FACULTY DISTRIBUTION			
	PROFESSOR	ASSOCIATE PROFESSOR	ASSISTANT PROFESSOR	INSTRUCTOR / TOTAL FACULTY
DEGREES GRANTED: BACHELOR'S: 1671	158	157	281	133 / 729
MASTER'S: 545 PH. D.: 73	OFFICE USE			
OFFICE OF INSTITUTIONAL STUDIES, UNIVERSITY OF MASSACHUSETTS - AMHERST				

Completed card for the University of Massachusetts.

Coding

"Coding" occurs only on the back of the card. For many of the items appearing on the left and right side of the card, this only requires notching those items which have a check mark alongside of them. For the "AAUP Ratings", only those ranks whose rating was identical with that for the University of Massachusetts--Amherst are notched, i.e., "Prof" is notched if the rating recieved was +B, etc. For "Astin's Variables", an item is notched if the score recorded falls within a five point range of the score reported for the University of Massachusetts, i.e., "Int" is notched if the score falls within 52-62 since the score for the University of Massachusetts was 57, etc.

The only remaining items to be coded (at present) are the "Region" and "Institution" codes appearing at the top and the "State" code at the bottom of the card. The "Region" code refers simply to the geographic region[7] of the country in which the institution is situated (see Appendix D). Here, only the appropriate region is notched. The remaining two codes are slightly more complicated.

As a glance at the card shows, there are groupings of holes numbered 1,2,4,7 as one reads right to left. Each of these groupings can be used to represent a digit from 0 to 9. A 0, for example, requires no notching; a 1, only the 1 hole is notched; for a 6, the 2 and 4 holes are notched; etc. For "State", there are two such groupings positioned adjacently. This arrangement allows a number from 0 to 99 to be coded by considering the right grouping the unit digit and the left grouping the tens digit. Similarly, the three groupings associated with "Institution" allow a number from 0 to 999 to be coded.

Each state, then, has been assigned a "State" code (see Appendix E) which is entered on the card as described above. In this way, the code for the state in which the institution is located is entered on the card. Similarly, each institution has been assigned an "Institution" code[8] (see Appendix F) which is entered as described. Thus, for the University of Massachusetts, the "State" code 22 and the "Institution" code 430 have been entered by appropriate notching (see figure 3).

In Conclusion

Since the actual work of filling out and coding the cards has only just begun, it is impossible to give specific examples of just how the system works. It is easy to see, however, how the system can, and will, be used. If, for example, a list of state universities with a school of pharmacy is desired, only these two items need be sorted for. If we then decide to limit the enrollment to less than 25,000, a sort is made at the 25,000+ hole under "Total Enrollment" and those cards remaining on the needle are kept since they do not include institutions of 25,000+.

It is impossible, of course, to assess the success of this system until it is operational. In theory, however, it promises to be a useful aid to the researcher in a variety of tasks. And, while the coding described in the proceding is oriented toward selecting institutions comparable to the University of Massachusetts, this coding procedure could be easily altered for use at any institution.

---

[7]As used by the Office of Education, U.S. Dept. of Health, Education and Welfare.

[8]In assigning "Institution" codes, space was left between institutions to allow insertion of additional institutions at a later date.

APPENDIX

Appendix A

The Commonwealth of Massachusetts

University of Massachusetts

Amherst 01003

August 21, 1967

Dear Sir:

The Office of Institutional Studies is currently in the process of establishing a card file of information on selected colleges and universities. This file will enable our office to have data readily available on these institutions for future research. These data will also be used to determine a sample of institutions "comparable" to the University of Massachusetts for use in future questionnaires and studies.

In order to implement this card file, the enclosed Institutional Data Questionnaire was devised so that the data gathered would be both up-to-date and accurate. I'm sure you'll find that most of the information requested is readily available and that it will only require a few minutes of your time to provide it. Your cooperation in this matter is needed in order that our file be accurate. Please give any statistical data as of Fiscal 1967, i.e., academic year 1966-67.

A post-paid envelope is provided for your convenience in returning this questionnaire. Please try to have your response in the mail by September 6.

A publication describing the exact nature of this card file and its potential uses will be available in a few months. I will, of course, be glad to send you a copy of this publication when it is available.

Thanking you in advance for your kind assistance, I remain

Sincerely,

Raymond G. Hewitt

Raymond G. Hewitt
Research Assistant
Office of Institutional Studies

Appendix B

INSTITUTIONAL DATA QUESTIONNAIRE

Your cooperation in providing the following information is needed in order that our office might maintain accurate data on your institution. Most items simply require filling in the appropriate figures. Please give any statistical data (items II-VI) as of Fiscal 1967, i.e., academic year 1966-67.

INSTITUTION _____

TELEPHONE NO. (Campus Switchboard) _____

I. CENTRAL ADMINISTRATION /Please fill in the name, title (if incorrect) and telephone number for each of the following administrators./

PRESIDENT _____

_____

ACADEMIC VICE PRESIDENT _____

_____

BUSINESS VICE PRESIDENT _____

_____

REGISTRAR _____

_____

ADMISSIONS OFFICER _____

_____

DIRECTOR OF INSTITUTIONAL RESEARCH _____

_____

CHANCELLORS OF BRANCH CAMPUSES _____

_____

II. UNDERGRADUATE COSTS

Tuition and Fees: Resident _____ **Non-resident** _____

Room _____ **Board** _____

III. NUMBER OF VOLUMES IN LIBRARY _____

IV. ENROLLMENT

Undergraduate: In-state _____ Out-of-state _____ Foreign _____

Graduate _____ Other _____

V. DEGREES GRANTED (Please fill in the number of each awarded in Fiscal 1967)

Bachelor's _____ Master's _____ Doctorate _____

VI. FUNDING (Please fill in the amounts and/or percentages)

State _____ Federal _____ Private _____ Tuition _____

VII. SCHOOLS AND COLLEGES (Please check those schools and colleges which exist on your campus)

Agriculture	_____	Law	_____
Arts & Sciences	_____	Medicine	_____
Business Administration	_____	Nursing	_____
Dentistry	_____	Pharmacy	_____
Education	_____	Physical Education	_____
Engineering	_____	Public Health	_____
Home Economics	_____	Other:	
		_____	_____
		_____	_____

Thank you for your cooperation!

Office of Institutional Studies / University of Massachusetts / Amherst 01002

Appendix C

IVY LEAGUE SCHOOLS

In coding the Institutional Data Card, the following will be considered to be the "Ivy League" schools:

MEN:
- Amherst
- Brown
- Columbia
- Cornell
- Dartmouth
- Haverford
- Harvard
- U. of Pennsylvania
- Princeton
- Tufts
- Yale
- Wesleyan (Conn.)
- Williams

WOMEN:
- Barnard
- Bryn Mawr
- Conn. College for Women
- Goucher
- Jackson
- Mt. Holyoke
- Pembroke
- Radcliff
- Smith
- Vassar
- Wellesely

Appendix D

REGIONAL CODES

Listed below are the states which constitute the eight major regions* used on the card. The abbreviations used for these regions are given in parenthesis.

NEW ENGLAND (NE)

- Connecticut
- Maine
- Massachusetts
- New Hampshire
- Rhode Island
- Vermont

MIDEAST (MD)

- Delaware
- District of Columbia
- Maryland
- New Jersey
- New York
- Pennsylvania

GREAT LAKES (GL)

- Illinois
- Indiana
- Michigan
- Ohio
- Wisconsin

PLAINS (PL)

- Iowa
- Kansas
- Minnesota
- Missouri
- Nebraska
- North Dakota
- South Dakota

SOUTHEAST (SE)

- Alabama
- Arkansas
- Florida
- Georgia
- Kentucky
- Louisiana
- Mississippi
- North Carolina
- South Carolina
- Tennessee
- Virginia
- West Virginia

SOUTHWEST (SW)

- Arizona
- New Mexico
- Oklahoma
- Texas

ROCKY MOUNTAINS (R)

- Colorado
- Idaho
- Montana
- Utah
- Wyoming

FAR WEST (FW)

- Alaska
- California
- Hawaii
- Nevada
- Oregon
- Washington

OTHER (no codes)

- Puerto Rico
- Virgin Islands

*This is the same regional breakdown used by the Office of Education of the U.S. Department of Health, Education and Welfare.

Appendix E

STATE CODES

The following gives both the "State" and "Regional" codes for each state. The number preceding is the state code to be used on the card; the abbrevation in parenthesis is the regional code.

1. Alabama (SE)
2. Alaska (FW)
3. Arizona (SW)
4. Arkansas (SE)
5. California (FW)
6. Colorado (R)
7. Connecticut (NE)
8. Delaware (MD)
9. District of Columbia (MD)
10. Florida (SE)
11. Georgia (SE)
12. Hawaii (FW)
13. Idaho (R)
14. Illinois (GL)
15. Indiana (GL)
16. Iowa (PL)
17. Kansas (PL)
18. Kentucky (SE)
19. Louisiana (SE)
20. Maine (NE)
21. Maryland (MD)
22. Massachusetts (NE)
23. Michigan (GL)
24. Minnesota (PL)
25. Mississippi (SE)
26. Missouri (PL)
27. Montana (R)
28. Nebraska (PL)
29. Nevada (FW)
30. New Hampshire (NE)
31. New Jersey (MD)
32. New Mexico (SW)
33. New York (MD)
34. North Carolina (SE)
35. North Dakota (PL)
36. Ohio (GL)
37. Oklahoma (SW)
38. Oregon (FW)
39. Pennsylvania (MD)
40. Rhode Island (NE)
41. South Carolina (SE)
42. South Dakota (PL)
43. Tennessee (SE)
44. Texas (SW)
45. Utah (R)
46. Vermont (NE)
47. Virginia (SE)
48. Washington (FW)
49. West Virginia (SE)
50. Wisconsin (GL)
51. Wyoming (R)
52. Puerto Rico
53. Virgin Islands
54.
55.
56.
57.
58.
59.
60.

Appendix F

SAMPLE OF THE LIST OF "INSTITUTION" CODES

387.
388.
389.
390. Louisiana State University and A & M College
391.
392.
393.
394. Louisville, University of
395.
396.
397.
398. Lowell Technological Institute
399.
400.
401.
402. Loyola University
403.
404.
405.
406. Maine, University of
407.
408.
409.
410. Marietta College
411.
412.
413.
414. Marshall University
415.
416.
417.
418. Marquette University
419.
420.
421.
422. Maryland, University of
423.
424.
425.
426. Massachusetts Institute of Technology
427.
428.
429.
430. Massachusetts, University of
431.
432.
433.
434. Memphis State University
435.
436.
437.
438. Miami, University of
439.
440.
441.
442. Miami University (Ohio)
443.
444.
445.
446. Michigan State University
447.
448.
449.
450. Michigan Technological University
451.
452.
453.
454. Michigan, University of
455.
456.
457.
458. Minnesota, University of
459.
460.
461.
462. Mississippi State University
463.
464.
465.
466. Mississippi, University of
467.
468.
469.
470. Missouri, University of
471.
472.
473.
474. Missouri, University of (Kansas City)
475.
476.
477.
478. Montana State College
479.
480.
481.
482. Montana State University
483.
484.
485.
486. Morehouse College
487.
488.
489.
490. Morgan State University

Appendix G

DOCUMENTS PROVIDING DATA FOR
THE INSTITUTIONAL DATA CARD

(1) Accredited Institutions of Higher Education, September 1967, American Council on Education, Washington, D.C.

(2) A Fact Book on Higher Education, First Issue, 1967, American Council on Education, Washington, D.C.

(3) Astin, Alexander W., Who Goes Where to College?, Science Research Associates, Inc., Chicago, 1965.

(4) Cass, James and Max Birnbaum, Comparative Guide to American Colleges, Harper and Row, New York, 1965.

(5) College Facts Chart, 1966-1967, The National Beta Club, Spartanburg, South Carolina.

(6) Facts and Figures on Government Finance, Tax Foundation, Inc., New York, 1967.

(7) "The Economic Status of the Profession, 1966-67", AAUP Bulletin, Summer, 1967, pp 160-185.